Paper No. 33

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte SVEN NORDIN

Appeal No. 1996-3960
Application No. 08/380,444

HEARD: June 7, 2000

Before HAIRSTON, FLEMING, and LEVY, Administrative Patent Judges.

FLEMING, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1 through 4 and 7 through 11. Claims 5, 6, 12 and 13 were canceled.

The invention relates to a single antenna for transmitting two RF frequencies. On page 5 of the specification, Appellant identifies that the antenna is sized to be either 5/8 or 3/4 of

the wavelength of the lower of the two frequencies. The antenna is a semi rigid coaxial waveguide and a one end the waveguide is shorted. On page 6 of the specification, Appellant identifies that the shield of the waveguide has slots for high frequency transmission. On page 6 of the specification, Appellant identifies that the high frequency output is fed to the antenna by a coaxial waveguide which is directly connected to the antenna. On pages 6 and 7 of the specification, Appellant identifies that the lower frequency is fed to the antenna by another coaxial waveguide which is connected to the antenna via a capacitor.

Independent claim 1 is representative of the invention and reads as follows:

> 1. An antenna arrangement for transmitting at least two RF frequencies, comprising:
> a waveguide antenna element which is of a length matched to a fraction of the wavelength of the lower of said at least two frequencies, said waveguide antenna element including
> an internal conductor and at least a shield around said internal conductor;
> a short circuit means at one end thereof connecting said internal conductor and said shield;

slots formed in the shield for the transmission of the higher of said at least two frequencies;

first waveguide means for feeding said higher frequency directly to the antenna element at the other end thereof; and

second waveguide means for capacitively coupling said lower frequency to the waveguide antenna element, wherein said shield extends to substantially cover the entire length of said internal conductor and acts as a transmitting element.

The Examiner relies upon the following reference:

Gilbert 2,479,227 Aug. 16, 1949

Claims 1 through 4 and 8 stand rejected under 35 U.S.C. § 102 as being unpatentable over Gilbert.

Claims 1 through 4 and 7 through 11 stand rejected under 35 U.S.C. § 103 as being unpatentable over Gilbert.

Rather than reiterate the arguments of the Appellant and the Examiner, reference is made to the Brief and Answer for the respective details thereof.

Opinion

We will not sustain the rejection of Claims 1 through 4 and 8 under 35 U.S.C. § 102, nor will we sustain the rejection of Claims 1 through 4 and 7 through 11 under 35 U.S.C. § 103.

We first consider the rejection under 35 U.S.C. § 102 as being anticipated by over Gilbert. Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. RCA Corp. v. Applied Digital Data Sys. Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984), cert. dismissed, 468 U.S. 1228 (1984); W. L. Gore & Assocs., Inc. v. Garlock Inc., 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed.

Cir. 1983), cert. denied, 469 U.S. 851 (1984). A reference anticipates a claim if it discloses the claimed invention "such that a skilled artisan could take it's teachings in combination with his own knowledge of the particular art and be in possession of the invention." In re Graves 69 F.3d 1147, 1152, 36 USPQ2d 1697, 1701 (Fed. Cir. 1995) (citing In re LeGrice, 301 F.2d 292, 293, 133 USPQ 365, 372 (CCPA 1962)).

Appellant asserts, on page 6 of the Appeal Brief (brief), that independent claims 1 and 3 recite that the lower frequency is fed to the antenna by a second waveguide capacitively coupled to the antenna. Appellant argues that Gilbert does not teach that there is a capacitive coupling between the antenna and the low frequency feed. Rather, Appellant asserts that Gilbert teaches a direct coupling between the feed for the low frequency and the antenna. Further, Appellant asserts that Gilbert's dielectric material, item 15, between sections 13 and 14 does not perform the claimed function of coupling the lower frequency to the antenna.

The Examiner asserts, on page 4 of the Examiner's Answer (answer), that Gilbert teaches:

> a second waveguide means is defined by the coaxial conductors 29, 30 of coax 28, for capacitively coupling the lower frequency to the waveguide antenna element 10, by virtue of the capacitance formed between the elements 14, 16 caused by the spacing therebetween and the dielectric 15 (and wherein a capacitor, as recited in Claim 3, is connected/formed between the antenna element 13 and one end, that is the connection end plate 32 and the shield 30 of the second waveguide means 28).

Further, on pages 9 and 10 of the Answer, the Examiner asserts that Gilbert's waveguide 28 provides capacitive coupling as conductors 29 and 30 do exhibit a capacitance.

As pointed out by our reviewing court, we must first determine the scope of the claim. "[T]he name of the game is the claim." In re Hiniker Co., 150 F.3d 1362, 1369, 47 USPQ2d 1523, 1529 (Fed. Cir. 1998). "[D]uring examination proceedings, claims are given their broadest reasonable interpretation consistent with the specification." In re Hyatt, slip 99-1182 (Fed. Cir, May 12, 2000), (citing In re Graves, 96 F.3d 1147, 1152, 36 USPQ2d 1697, 1701 (Fed. Cir. 1995) and In re Etter, 756 F.2d 852, 858, 225 USPQ 1, 5 (Fed. Cir. 1985). We find that the scope of claims 1 and 3 includes an antenna which is fed from two waveguides, one of which is directly connected to the antenna and the other of which is capacitively coupled to the antenna. This scope is shown in

the limitation of claim 1 which reads "first waveguide means for feeding said higher frequency directly to the antenna element . . . second waveguide means for capacitively coupling said lower frequency to the waveguide antenna element." Appellant has not provided a special meaning to the term "coupled." Accordingly, we find the term coupled should be interpreted using the ordinary dictionary meaning: to link or to connect. Therefore, we find that the scope of claims 1 and 3 is that the higher frequency is fed to the antenna through a waveguide directly connected to the antenna and the lower frequency is fed to the antenna through a capacitive connection with a second waveguide.

We find that Gilbert fails teach a capacitive coupling between the antenna and the waveguide which feeds that low frequency. We find that Gilbert teaches an antenna which can broadcast at two frequencies, one higher than the other. See column 1, line 40. The antenna, item 11, comprises two antenna components, items 13 and 14. See column 2, lines 11 through 23. Gilbert teaches that the high frequency is fed by a wave item 21 guide directly to antenna component 13. See column 2, lines 32 through 38. Gilbert teaches that the low

frequency is fed by coaxial waveguide 28. The shield of waveguide 28 is directly connected to antenna element 14. The center conductor of waveguide 28 is connected through item 21 to antenna element
item 13. See column 3, lines 6 through 15. Thus we find that the waveguide for the lower frequency is directly coupled to the antenna item 16. Gilbert's dielectric, item 15, is an element of the antenna which couples antenna sub-elements 13 and 14. See column 2, lines 16 through 20. We find that any capacitance formed as a result of dielectric 15 does not link the antenna, item 16, to the low frequency waveguide. Further, we disagree with the Examiner's assertion, on page 10 of the Answer, that the capacitance between the inner conductor 29 and the outer shield, items 28 of Gilbert's waveguide meets the capacitive coupling
limitation of claims 1 and 3. We find that though Gilbert's low frequency coaxial cable may have capacitance between the two conductors, such capacitance is a feature of the waveguide and does not couple the waveguide to the antenna. In summary we find that Gilbert's antenna and low frequency coaxial feed may have capacitance, but we do not find that there is

capacitance in the coupling between the low frequency waveguide and the antenna.

We next consider the rejection of claims 1 through 4 and 7 through 11 under 35 U.S.C. § 103. It is the burden of the Examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the express teachings or suggestions found in the prior art or by the implication contained in such teachings or suggestions. In re Sernaker, 702 F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983). "Additionally, when determining obviousness, the claimed invention should be considered as a whole; there is no legally recognizable 'heart' of the invention." Para-Ordance Mfg. V SGS Importers Int'l Inc., 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995) (citing W. L. Gore & Assocs., Inc.v. Garlock Inc., 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983), Cert. denied, 469 U.S. 851 (1984)).

Appellant argues on page 7 of the Brief that the same arguments applied to the rejection under 35 U.S.C. § 102 also apply to the 35 U.S.C. § 103. Further, on page 8 of the Brief, Appellant argues that the rejection involves hindsight reasoning.

On pages 5 and 6 of the Answer, the Examiner sets forth the rejection based upon 35 U.S.C. § 103. On page 6 of the Answer the Examiner asserts that "it would have been obvious to a skilled artisan to employ an amount of capacitance between the input coax feeder 28 and the elements 13 and/or 14 for providing capacitive coupling of the antenna and the feedline." Further, the Examiner asserts that one0 would be motivated to use a capacitor for d.c. isolation.

As stated above, we find that the scope of claims 1 and 3 includes an antenna which is fed from two waveguides, one of which is directly connected to the antenna and the other of which is capacitively coupled to the antenna. Further, we find that independent 9 is of similar scope. This limitation is found in the claim 9 recitation of: "second waveguide means for capacitively coupling said lower frequency to the waveguide antenna element." Thus, we find that independent claims 1, 3 and 9 all include the limitation of capacitively coupling the lower frequency waveguide to the antenna.

As stated above, we find that Gilbert fails to teach that the low frequency waveguide is capacitively coupled to the antenna. Further, as Gilbert teaches that the low frequency wave guide is directly coupled to that antenna, we find that Gilbert fails to provide suggestion to capacitively couple the low frequency waveguide to the antenna. We note that the Examiner has taken Official Notice that capacitively coupling is well known. However, the Examiner has provided no evidence supporting this assertion. Upon challenge of the assertions by the Appellant, the Examiner should have supplemented the stated rejection with a reference providing evidence of Noticed assertions. We are not inclined to dispense with proof by evidence when the proposition at issue is not supported by a teaching in a prior art reference or shown to be common knowledge of unquestionable demonstration. Our reviewing court requires this evidence in order to establish a prima facie case. In re Piasecki, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed. Cir. 1984); In re Knapp-Monarch Co., 296 F.2d 230, 232, 132 USPQ 6, 8 (CCPA 1961); In re Cofer, 354 F.2d 664, 668, 148 USPQ 268, 271-72 (CCPA 1966). Furthermore,

our reviewing court states in In re Piasecki, 745 F.2d 1468, 223 USPQ 785, 788 (Fed. Cir. 1984) the following:

> The Supreme Court in Graham v. John Deere Co., 383 U.S. 1 (1966), focused on the procedural and evidentiary processes in reaching a conclusion under Section 103. As adapted to ex parte procedure, Graham is interpreted as continuing to place the "burden of proof on the Patent Office which requires it to produce the factual basis for its rejection of an application under section 102 and 103." Citing In re Warner, 379 F.2d 1011, 1020, 154 USPQ 173, 177 (CCPA 1967).

For the foregoing reasons we will not affirm the rejection of claims 1 through 4 and 8 under 35 U.S.C. § 102, nor will we affirm the rejection of claims 1 through 4 and 7 through 11 under 35 U.S.C. § 103.

No period for taking any subsquent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

REVERSED

KENNETH W. HAIRSTON Administrative Patent Judge	)
MICHAEL R. FLEMING Administrative Patent Judge	) BOARD OF PATENT APPEALS AND INTERFERENCES

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)
STUART S. LEVY)
Administrative Patent Judge)

MRF/sld

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OBLON, SPIVAK, MCCLELLAND,
MAIER & NEUSTADT
FOURTH FLOOR
1755 JEFFERSON DAVIS HWY
ARLINGTON, VA 22202

Shereece

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Application No. 08/380,444

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AFFIRMED

Prepared: June 26, 2001